

tract truck rate is \$124.80 per month, it is possible for all this to be released for the purchase of materials, if the sponsor will assume the cost of rental of the truck alone, which should not be more than \$70.00. It is preferred not to spend any of these restricted material and equipment funds for wages. About fifty-five dollars of it goes for that purpose when a truck is contracted at \$124.80 per month.

While the work program is intended to provide employment for the unemployed, it does not follow that modern machinery should not be used on a WPA road project. Certain parts of the job can best be done with equipment such as the sponsor already owns; and in the interest of good work, it should be used.

It is the desire of those connected with the work program to co-operate with the sponsor to the fullest extent within the regulations under which they must operate. They want to make the completed job conform to the sponsor's plans and specifications. They ask only that the project be a worthy one so that the money spent, both federal and local, may procure the widest and most lasting public benefit, and that the independent, creative spirit of many unfortunate American citizens may be conserved.

OPERATING A COUNTY GARAGE

Oscar H. Fuller,
Hancock County Road Supervisor,
Greenfield, Indiana

Hancock County purchased its highway garage buildings about eight years ago. The buildings are built of brick. The garage building is 50' by 100'. In it we keep all our equip-



A typical county highway garage, built by WPA.

ment at night and when not in use. The other building, which we call the shop, is 30' by 50'. It is large enough to accommodate any of our equipment needing repair. It is heated by a stove. The tools in the shop include a welding outfit, a cutting torch, an air compressor, a vice, an anvil, and a work bench with a rack for all kinds of small repair parts, such as bolts and spark plugs. We do not carry a large stock of repair parts, as we are within 20 miles of Indianapolis and can get almost any parts needed in two hours' time. We have ample room in the shop so that on bad days we are able to do quite a lot of miscellaneous work, such as painting signs. We also mix the patching materials for blacktop roads inside. The gravel is mixed with the bituminous material and stock-piled inside of the building. Having this material mixed in advance enables us to repair more roads on good days.

All hands report for work at 6:30 A. M. and, at once beginning to get their equipment ready, leave the shop by 7:00 A. M. They work until 4:30 in the evening. We have one mechanic who works in the shop and is ready for emergency calls at any time.

MAPPING AIRPLANES AND THEIR FUTURE

Talbert Abrams, President,
Abrams Aerial Survey Corporation
and
Abrams Air Craft Corporation,
Lansing, Michigan

A discussion of aircraft for aerial photography, surveying, sketch mapping, reconnaissance, or observation should best consider the past, the present, and the future.

THE PAST

I find in the Patent Office of the United States in Washington patents on methods of mapping, patents on aerial cameras, patents on stereoscopes and other devices which could be used for contouring, and patents on various types of airplanes and contrivances for flying. From a study of all these patents, most of which have never been put into production or general sale and most of which are outlawed by age, a complete story of the progress of aerial mapping equipment, including airplanes, cameras, and accessories, is told. Slow progress was made in the development of equipment for aerial surveys prior to the World War. Since 1918, progress has been rapid. New methods for aerial surveys have been used each year and aerial surveying is a well-established industry.

For the past twenty-five years, aviators have cut camera holes in all types of airplanes and added special windows in